No.4 I1-044

CATEGORY III INQUIRY SUBMITTAL
Improvement of Delta Agricultural Drain Water Quality through Conversion of Tilled Agriculture to Permanent Pasture

Project Manager:

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Project Description: The goal of this five-year demonstration project is to improve water quality in Delta waters through various land management practices. Current agricultural uses of crops that require extensive tillage, irrigation, and pesticides will be replaced with various options, including permanent pasture, grazing, and green chopping, and evaluated on their benefits in reducing the quantity and improving the quality of agricultural drain water. To implement this demonstration, two plots of land will be used for side-by-side comparisons of agricultural drain water quality resulting from two different agricultural uses. Corn will be used for as the tilled agricultural land use for comparison. A permanent pasture will be established with fencing allowing selective grazing of portions of the pasture. Water quality baseline measurements will be taking prior to establishment of the test areas. Drainage ditches surrounding the test areas and the main drain will be monitored for changes in water quality. It is anticipated that this demonstration would be conducted on Sherman Island. A map of Sherman Island is attached. The exact location of the study area is not currently available.

Expected Ecosystem Water Quality Benefits Improvement of quality of agricultural drain water. Expected reduction of parameters of concern include heavy metals, petrochemical nutrients, pesticides, salinity, and turbidity, and DO. Reduction of Total Organic Carbon may also occur, but this may be only a drinking water quality benefit, unless there exists a DO problem for the baseline agricultural land use drainage. Though upland grazing is considered detrimental to some aspects of water quality, controlled rotational grazing may provide water quality benefits. Green chopping (cutting fresh and then transporting the grass to a confined animal population) would eliminate some negative water quality aspects of pasture grazing. Extensive fencing allows for control of animal access to portions of the pasture, and proximity to seasonal nesting waterfowl.

Additional Ecosystem Benefits: Rotational chopped or grazed pasture provides additional terrestrial habitat for wildlife waterfowl, including geese, swans, ducks, as well as other species that might utilize this habitat.

Feasibility: This project would be conducted in conjunction DWR's Division of Planning, which manages Twitchell and Sherman islands and has developed various proposals to convert areas of high tillage agricultural crops to other uses such as creation of wetlands, upland and riparian habitat, and low tillage options such as grazing and permanent pasture. Although these proposals have not yet been implemented, plans have been made to provide $30,000 to fund water quality monitoring for demonstrations associated with land management impacts. This project would be easy to implement, since this land use change requires no additional permits, nor does the water quality monitoring. There would be a period of time of 6 months to 1 year needed to construct and establish the permanent pasture. 2 years of actual water quality monitoring would be conducted, which would include baseline measurements.

Monitoring and Data Evaluation: Monthly water quality monitoring data would be collected in the perimeter and central drains. Pesticide monitoring would be limited to those compounds historically and currently use for Delta agriculture. Minerals, turbidity, Total Suspended Solids, Salinity, DO, and TOC would also be monitored. Data would be analyzed and stored within the DLA Water Quality Assessment data base, which currently houses over 140 thousand records of water quality data. Progress and results of the study would be made available to interested parties, as well as being accessible through the MWQI's web site.

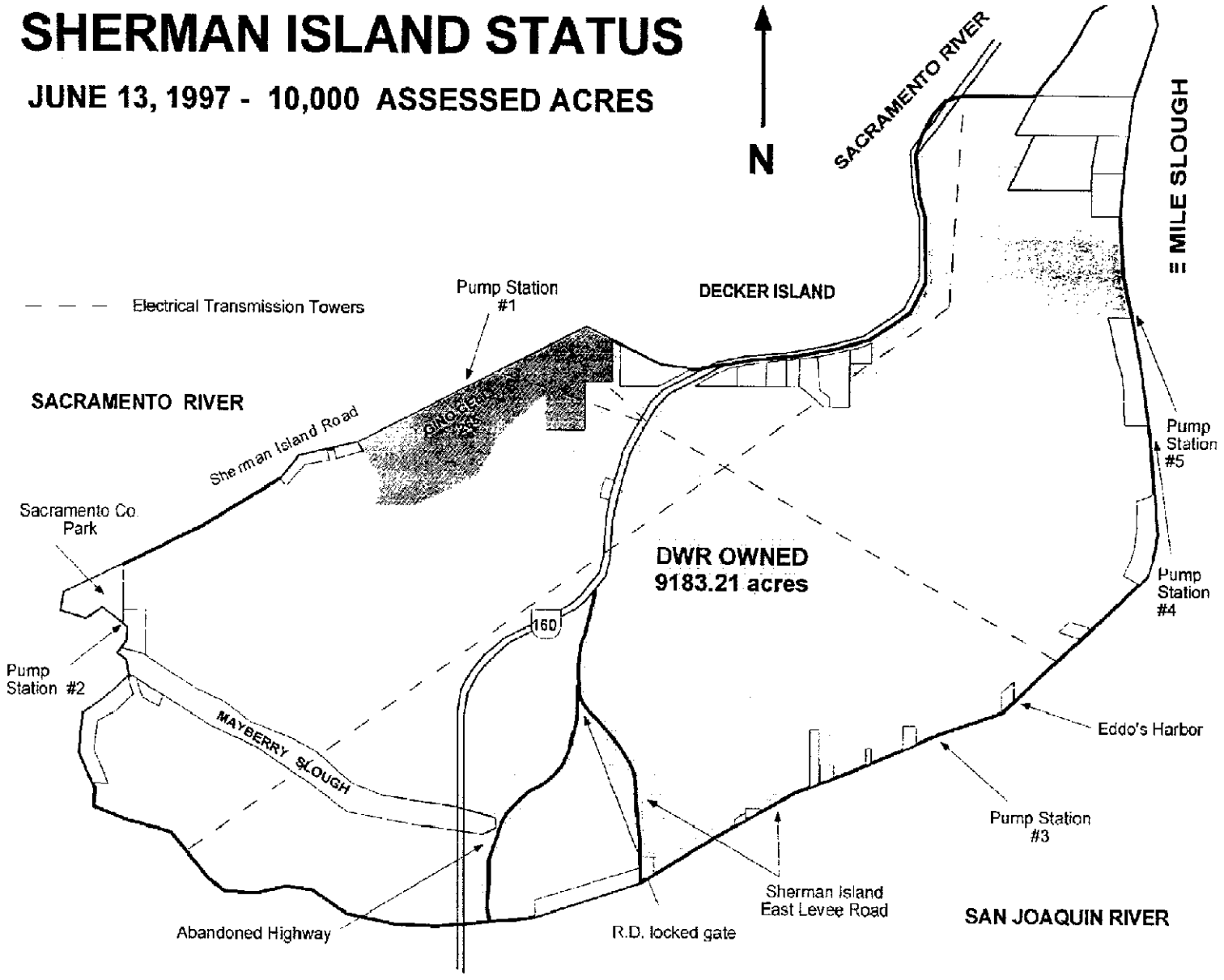
Qualifications: The MWQI Program has been conducting Delta water quality research since 1982. Approximately 15% of our current budget goes to conducting routine water quality monitoring in the Delta, while the remaining amount is spent on special investigations within the Delta and watershed researching solutions to drinking water quality impacts. The MWQI staff represents a mixture of disciplines, and includes biologists, engineers, chemists, soil scientists, toxicologists, and agricultural science experts. Most of the staff have years of experience within the Delta conducting water quality or biological study and research. In addition, the Water Quality Assessment branch houses Bryte Lab, a DHS certified laboratory, the Site Assessment Program, and DWR's QA/QC unit, which provides guidelines for establishing accuracy in studies and data analysis.

Coordination with Other Programs/ Compatibility with CALFED Objectives: The program would be conducted in coordination with DWR's West Delta Water Management Program. In addition, some funding would be provided by the MWQI Program in the interest of drinking water impacts. Project goals compatible with CALFED objects:

1. Provide water quality benefits to ecosystem and drinking water supplies.
2. Increase terrestrial habitat for waterfowl and other species.
3. May provide subsidence reduction through elimination of annual tillage and by increasing soil moisture content, which is the goal of reducing the risk to long term land use.
4. Demonstrate that both water quality and ecosystem benefits can be achieved without totally sacrificing the agricultural base. DWR's recent attempts at implementing a voluntary land retirement program to reduce selenium impacts would suggest that conversion of agricultural land to non-agricultural land may not be potentially viable, even for the purpose of improving water quality, and providing significant habitat enhancement.

SHERMAN ISLAND STATUS

JUNE 13, 1997 - 10,000 ASSESSED ACRES



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